

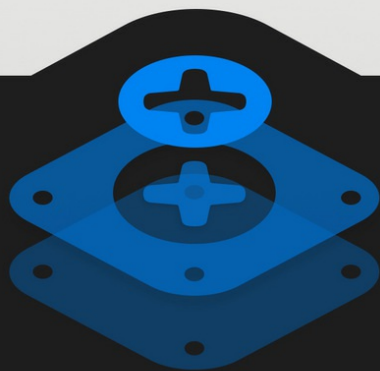


# HTC One M9 Teardown

Teardown of the HTC One M9 on April 2, 2015.

Written By: Ron Davis

# HTC One M9



# TEARDOWN

## INTRODUCTION

It's officially spring, which means pastels, bunnies, and shiny new devices to eggsplore. HTC sprouted a *third* One, the M9, and we hopped right to a teardown. Join us as we crack open our pre-Easter treat, the HTC One M9.

Ready to spring into action? Follow us on [Instagram](#), like us on [Facebook](#), or listen to the birds tweet on [Twitter](#).

[video: [https://www.youtube.com/watch?v=tb\\_ENgMkwPE](https://www.youtube.com/watch?v=tb_ENgMkwPE)]

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### TOOLS:

- [T5 Torx Screwdriver](#) (1)
  - [Phillips #00 Screwdriver](#) (1)
  - [iOpener](#) (1)
  - [iFixit Opening Picks set of 6](#) (1)
  - [Tweezers](#) (1)
  - [Spudger](#) (1)
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## Step 1 — HTC One M9 Teardown



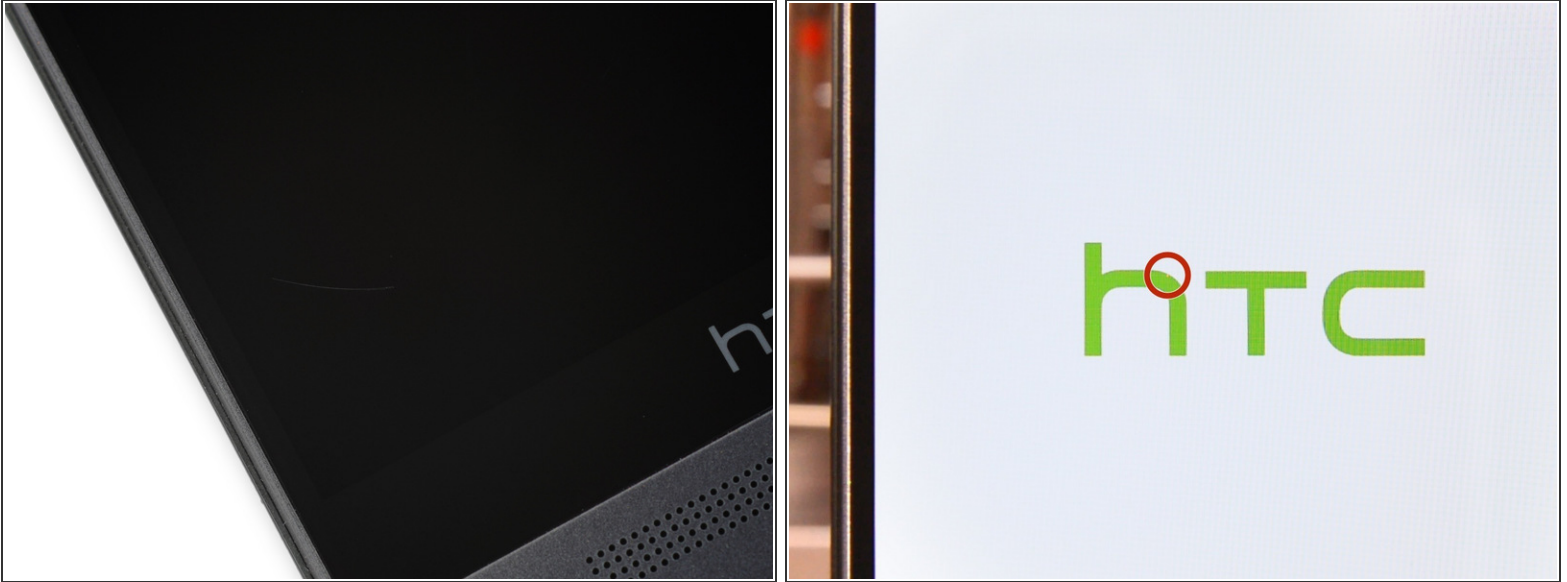
- HTC hopes the M9 will be the *One* for you. Let's see just what it's packing:
  - 5.0-inch, 1920 x 1080 display, with front-facing stereo speakers
  - 20 MP rear-facing camera with 4K video recording; HTC UltraPixel front-facing camera with 1080p video recording
  - Qualcomm Snapdragon 810—64-bit, octa-core (4 x 2.0 GHz + 4 x 1.5 GHz)
  - 3 GB RAM
  - 32 GB of on-board storage; up to 2 TB additional microSD storage
  - LTE, Bluetooth 4.1, NFC, HDMI MHL 3.0, 802.11ac, and IR blaster


## Step 2



- Did HTC secretly send us a Mac Mini? No, but it's definitely a uniquely designed box.
- HTC recently rolled out ["Uh-Oh Protection"](#) for One M8 and One M9, promising an entire replacement phone for a cracked screen or water damage in the first year of One-rship.
- ① We're betting this deal has something to do with the [repair-unfriendly design](#) that these phones share.

## Step 3



- HTC has been experiencing some [shipping delays](#) with the One M9, presumably due to a lack of stock.
  - Coincidentally, our phone seems to have encountered more relaxed quality standards than is expected from HTC.
  - Straight out of the box we noticed a large scratch on the bottom left corner of the display glass.
  - And it doesn't stop there! When we first booted up the phone, we were greeted by a lovely [defective pixel](#) near the middle of the screen.
-  These issues are giving us a [bad feeling about this](#) phone...

## Step 4



- The dual-tone metal unibody of the M9 is practically identical to that of the M8. The gunmetal gray M9 is just a shade darker than its older sibling; otherwise, you might say these HTCs are twins! Well, almost...
- The M9's most noticeable difference from its [predecessor](#) is a return to a single rear camera, like the original [HTC One](#). Possibly HTC decided that competing with the [3DS dual camera](#) was a little beneath them.
- The M9's secondary metamorphosis was a migrational button shuffle.
  - With the iPhone 6 and 6 Plus, Apple learned that a top-mounted power button doesn't cut it for a hand-stretching phablet, and [moved its power switch to the side](#). Looks like HTC caught on and followed suit with the M9.
  - The M9 also replaces the rocker switch of yesteryear with dedicated volume +/- buttons.



## Step 5



- Some persistent [picking](#) at the top of the case reveals a couple of Torx screws.
  - Gone are the frontal access panels. The two screws at the top are all the M9 relies on, so far at least.
- ❗ Maybe this One doesn't have the [Hermetically Tight Case](#) we were fearing.
- So far, so good. The [M8](#) came fastened with screws rather than [formidable adhesive and finicky clips](#), so let's hope the anti-adhesive trend continues...

## Step 6



- Unlike the original HTC One, there's no need to Heat The Case of the M9. After removing the top panel's screws, we get straight to business with an opening pick to Handle Those Clips.
- We use our trusty pick to ~~rent the phone in two~~ carefully separate the rear case from the body of the phone.
- The bottom clips are particularly stubborn, but so far, no adhesive!
- As we pop the rear case of the M9, we get our first view of the tender morsels inside. At first glance, this new HTC One closely resembles the M8.

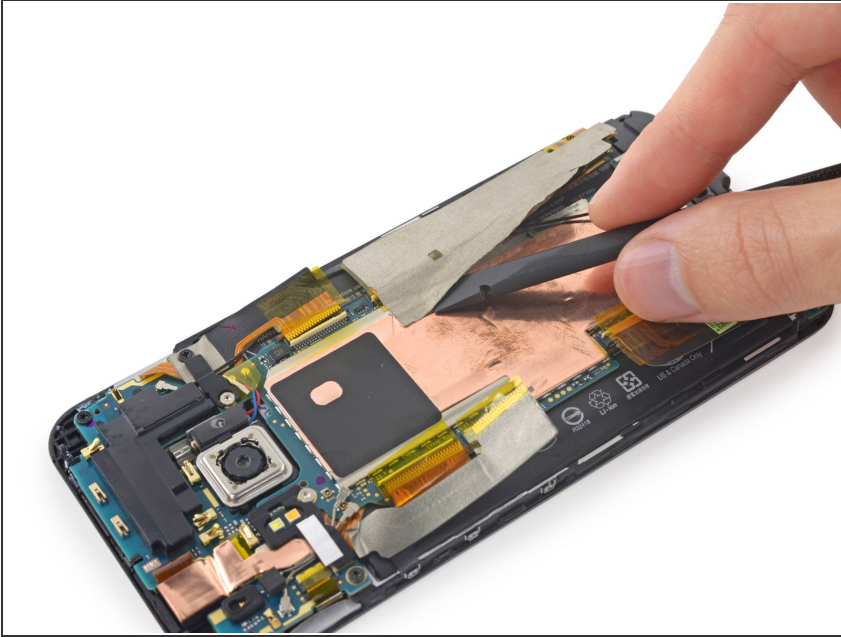


## Step 7



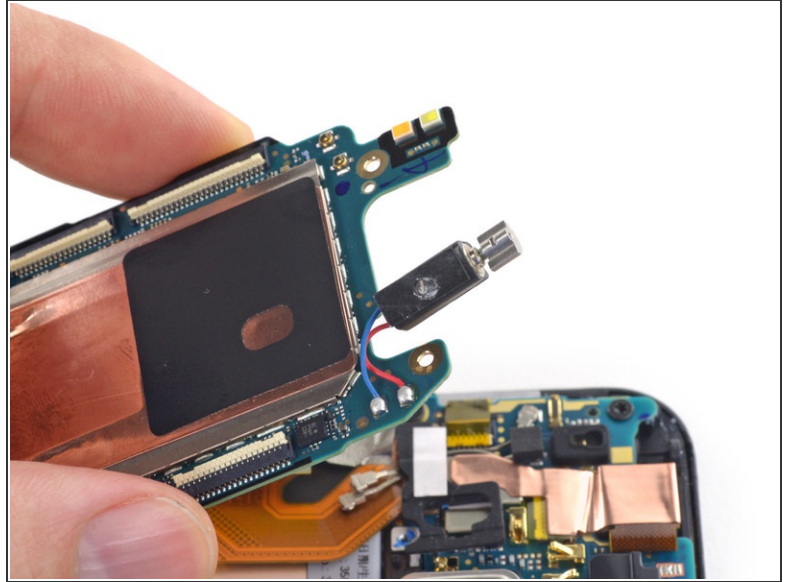
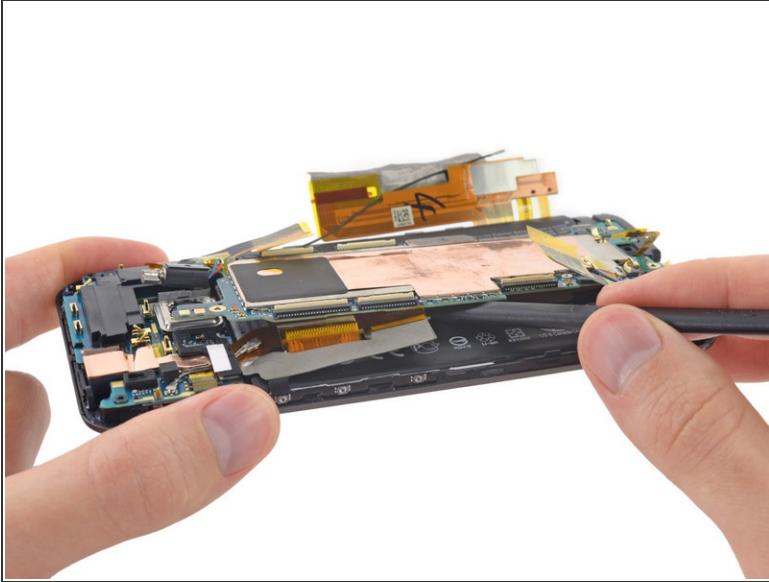
- HTC clearly loves its shielding. We're thankful that they've abandoned the tape strata of the M8 (second image), for a slightly cleaner and more accessible design on the new M9 (first).
- Aside from the minor housekeeping and ditching the Duo Lens depth-perceiving camera, not much seems to have changed.
  - ⓘ Except for the color. The motherboard is now blue, which probably makes it run faster than last year's green.

## Step 8



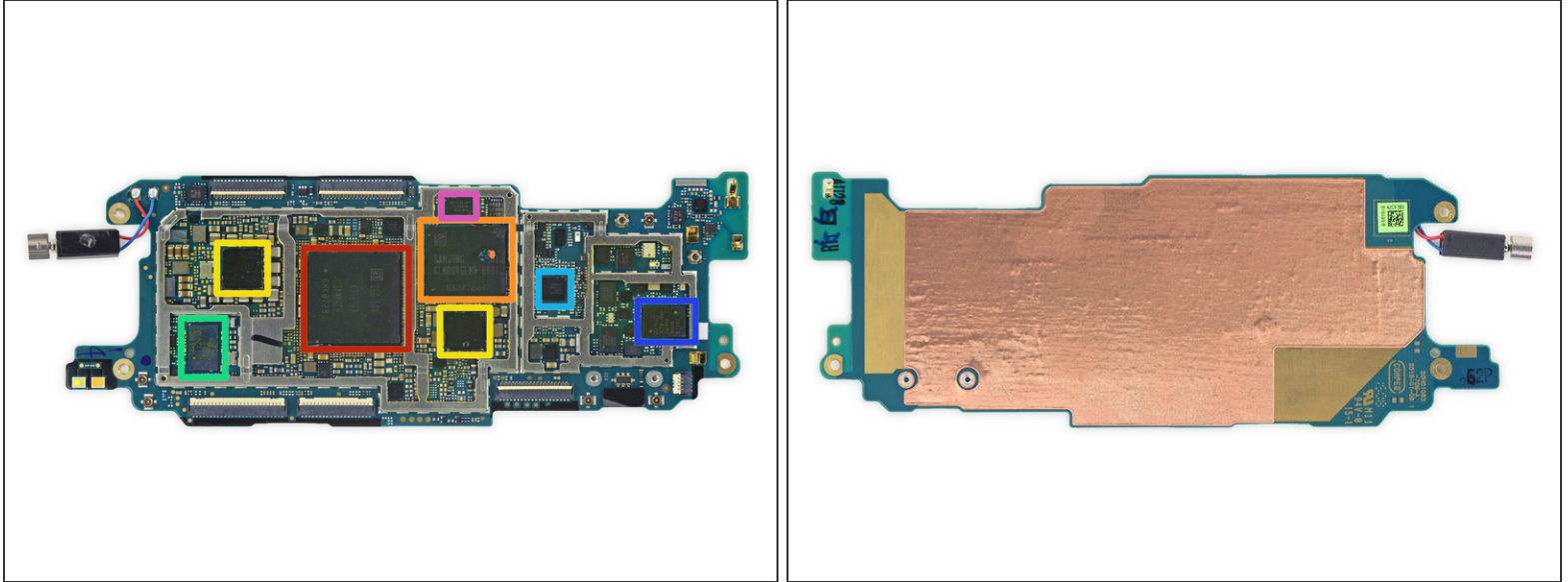
- This HTC teardown is feeling a lot less like the [open heart surgery](#) we had to perform on the M8.
- Whoever went tape-happy last year has been duly pacified. While there are still plenty of connectors, they're easier to get to, and to dispatch.
- ⓘ Let's hope we don't jinx this motherboard removal...

## Step 9



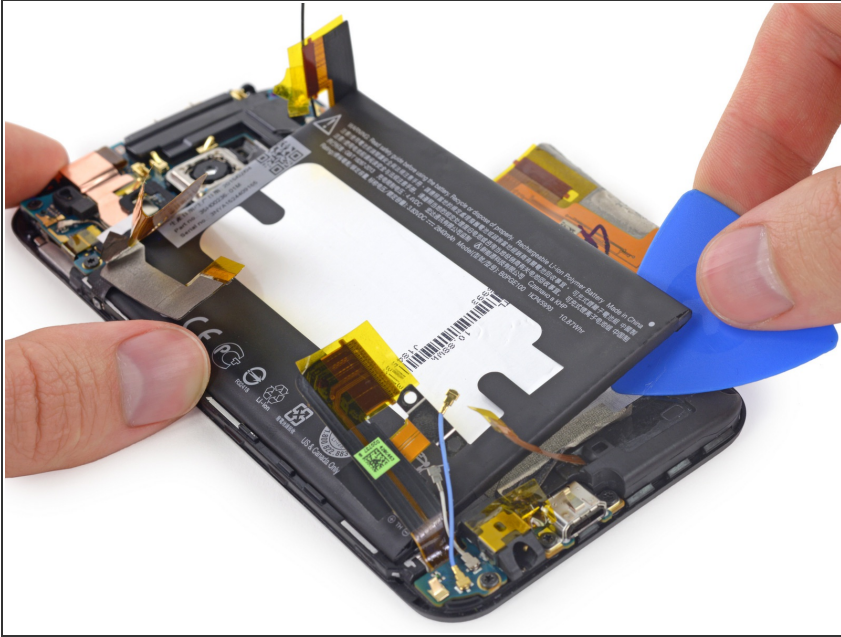
- Augh! What is this? Looks like HTC's engineers weren't interested in our input from the M8. They've stuck with their habit of [gluing down the motherboard](#).
  - ⚠ Not only is the motherboard adhered, it's bang up against the battery—a "soft" battery.
- After some very gentle prying with a blunt spudger, we manage to free the motherboard and not catch fire.
  - Phew!
- Oh and the rotational vibrator? Yeah, it's now soldered to the motherboard, and (lightly) adhered to the case.
  - ⓘ [No more connector](#), and no more snug sleeve. Replacement just got a notch more involved.

## Step 10



- Here're The Chips! Covered in what hopefully isn't snot (they came a little dirtier than we're [used to...](#))
  - Samsung [K3RG3G30MM-MGCH](#) 3 GB LPDDR4 RAM + Qualcomm [Snapdragon 810](#) octa-core CPU
  - Samsung [KLMBG4GEND-B031](#) 32 GB eMMC NAND flash
  - Qualcomm [PMI8994](#) Power Management IC
  - Broadcom [BCM4356](#) 2x2 802.11ac Wi-Fi solution with Bluetooth 4.1 support (Also found in the [Nexus 6](#))
  - Qualcomm [WTR3925](#) 28 nm RF transceiver
  - Avago ACPM-7800 multimode, multiband power amplifier module
  - Silicon Image [SIL8620](#) MHL 3.0 transmitter

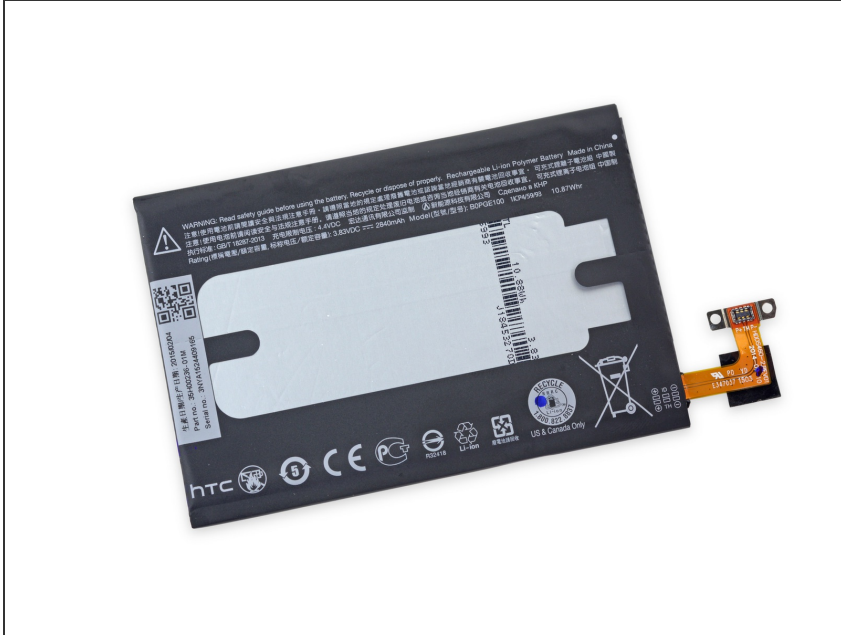
## Step 11



- Now that the motherboard is out, we can remove the (hopefully undamaged) battery! After some more prying, that is.
- Yep, the motherboard [still](#) has to come out before the battery. And the battery is *still* a glue sandwich —Hold The Cheese.
- We complained [last year](#), and we Have To Complain again this year. A lithium-ion battery is a consumable —it's only good for a [limited number of charge cycles](#) before it starts to lose capacity and needs to be replaced.
- Burying the battery so deeply within the device signs its death certificate the day of its manufacturing birth.



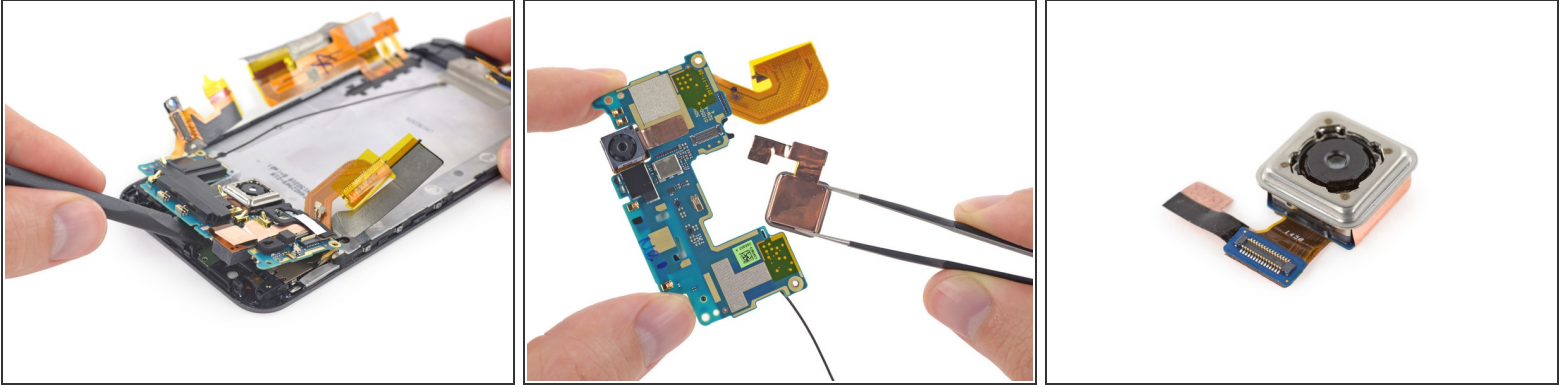
## Step 12



- Spec-wise, HTC has once again given the battery a slight capacity boost—up to 10.87 Whr from [yesteryear's](#) 9.88, but still a little shy of the 11.1 Wh in the [iPhone 6 Plus](#). (The original One sported a measly 8.74 Whr battery.)
- [AnandTech's review](#) found the M9's battery life slightly disappointing compared to the M8. It seems HTC made an effort to stop the bleeding with a capacity bump, but it's ultimately not enough to surpass its predecessor.
- Add the fact that the M9 supports [Qualcomm's new Quick Charge 2.0](#) spec, but ships with a conventional 5 V, 1.5 A charger that can't provide the quick juice, and we're a little disappointed.
- ① Take note, HTC. The [Nexus 6](#) accepts Quick Charge *and* ships with a quick-charge compatible charger.

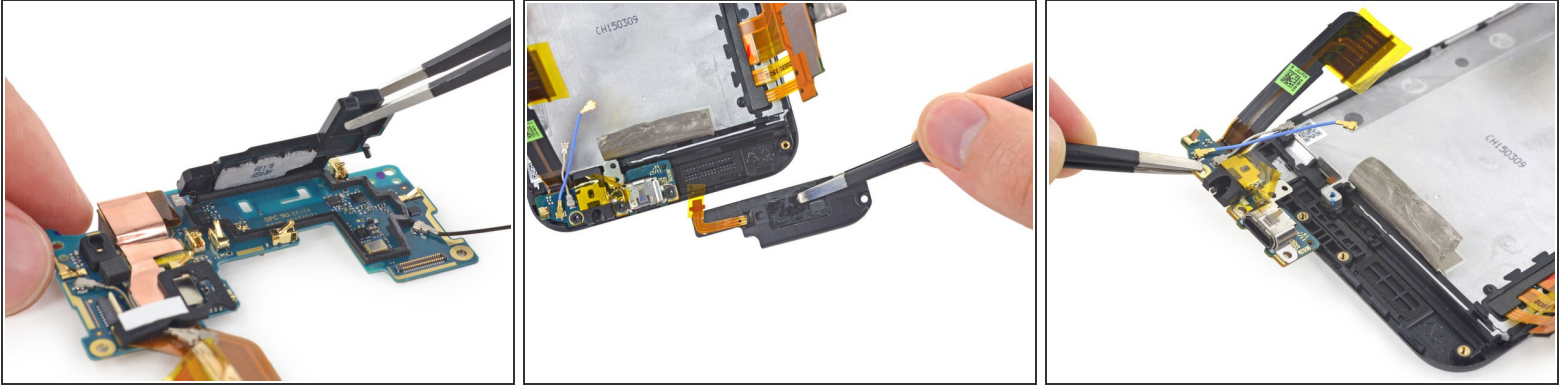


## Step 13



- We want to get a look at the M9's [Highly Touted Camera](#). After one last connector, a few more screws, *and* some adhesive, the daughterboard is finally free.
- And with it, the newly single rear-facing camera.
  - ⓘ You go, camera—you are a strong independent image capturing component that doesn't need any gimmicky 3D to define you.
- The M9's 20 MP rear camera sports a sapphire cover lens—possibly in response to [criticism](#) of an easily-scratched cover on the M8. HTC seemingly took a cue from [Apple](#) and introduced some camera bling.

## Step 14



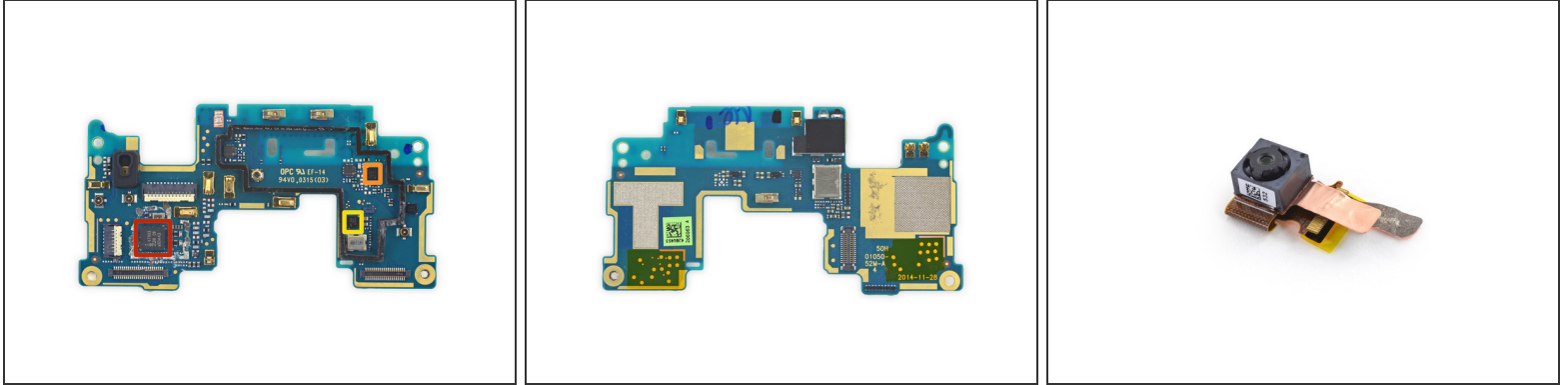
- Speaker box! Full of styrofoam! Such technology.
- HTC's BoomSound speakers make their encore performance in the M9. This new iteration of the BoomSound speakers sports Dolby Audio, bringing a full soundstage to your video chats with Nana.
- We tweeze out the I/O board, along with the attached 3.5 mm audio jack, microphone, and micro-USB port.

## Step 15



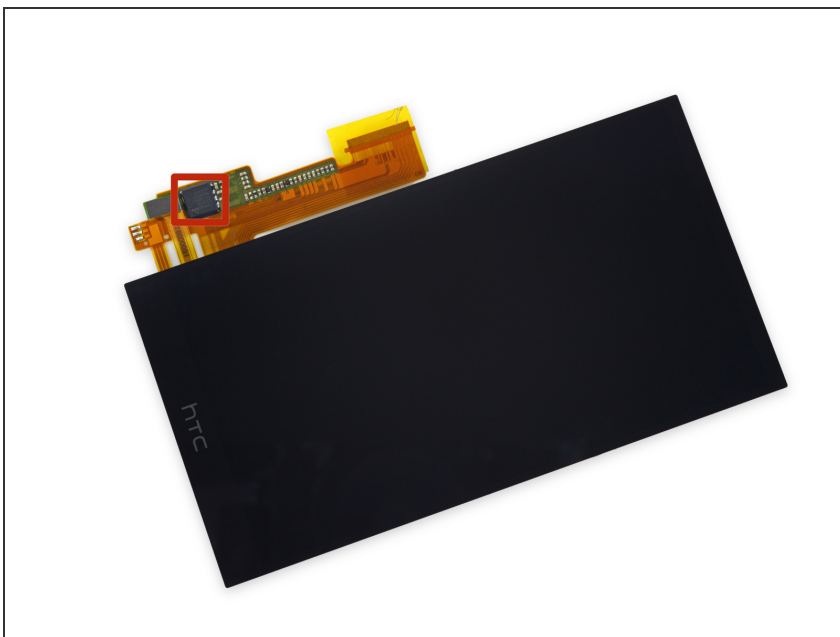
- It's time to turn up the heat! Two particularly sticky strips of adhesive stood in our way, and it took a lot of careful heating and prying with the [iOpener](#) to free the LCD.
- We find numerous cryptic characters scrawled on the back of the LCD. Does this One have a secret message for us?
- ❗ After consulting our [Highly Trained Cryptologist](#), we've been informed that they're probably just quality assurance marks.

## Step 16



- The camera board is out of the phone and ready for its close-up. Here's what's chilling on the board:
  - NXP [47803](#) NFC controller, as seen in the [Amazon Fire Phone](#)
  - Qualcomm [QFE2550](#) antenna tuner
  - Maxim Integrated [MAXQ614](#) 16-bit microcontroller with infrared module
- It looks like HTC moved all their [Ultrapixels](#) to the display side—this 4 MP front-facing camera has the same specs as the M8's primary camera, but in a slightly smaller package.

## Step 17



- Mounted to the display assembly ribbon cable, we see the Synaptics S3351B touchscreen controller.
- ⓘ This is likely an iteration of the S3350B found in the [Nexus 5](#).

## Step 18



## REPAIRABILITY SCORE:



- HTC One M9 Repairability Score: **2 out of 10** (10 is easiest to repair)
  - The battery is buried beneath the motherboard and adhered to the midframe, hindering its replacement.
  - The display assembly cannot be replaced without tunneling through the entire phone. This makes one of most common repairs—a damaged screen—very difficult to accomplish.
  - Intense adhesives make many components difficult, and even dangerous, to remove and replace.
  - HTC thought they could Have Their Cake and eat it too, by making a flagship phone that's tough to repair. Sorry HTC, but this design Has To Change.
  - Design streamlining (upper access panel and reduced tape/shielding) makes for slightly easier access to some components.

To reassemble your device, follow these instructions in reverse order.

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